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UNITED STATES DISTRICT COURT  
CENTRAL DISTRICT OF CALIFORNIA

COLUMBIA PICTURES  
INDUSTRIES, INC., *et. al.*

Plaintiffs,

v.

GARY FUNG, *et. al.*

Defendants.

Case No. CV-06-05578 SVW (JCx)

The Hon. Stephen V. Wilson

**SUPPLEMENTAL DECLARATION  
OF RICHARD WATERMAN  
PURSUANT TO THE COURT'S  
AUGUST 25, 2009 ORDER RE  
PLAINTIFFS' MOTION FOR  
SUMMARY JUDGMENT ON  
LIABILITY**

**REDACTED PURSUANT TO  
PROTECTIVE ORDER**

1 I, Richard Waterman, the undersigned, declare:

2 1. I am an Adjunct Associate Professor of Statistics at The Wharton  
3 School at the University of Pennsylvania, and the President and Co-Founder of  
4 Analytic Business Services, Inc., a consultancy focused on providing expert advice  
5 and opinions in the field of statistical analysis. I received my Ph.D. in Statistics in  
6 1993, and have substantial experience with the statistical principles of the sort  
7 described in this declaration. I have previously submitted a declaration in support of  
8 plaintiffs' motion for summary judgment, sworn to September 4, 2007, which I  
9 understand is in the Court record at Docket # 258. Further details of my  
10 professional history including a list of publications I have authored can be found on  
11 the résumé attached as Exhibit A to my previously submitted declaration.

12 **Scope of Work And Summary of Conclusions**

13 2. I have been asked by the plaintiffs to consider the probability that  
14 certain motion picture studio works were or were not downloaded by defendants'  
15 United States users. Specifically, I have reviewed the Declaration of James J.  
16 Emerson in Support of Plaintiffs' Motion for Summary Judgment, sworn to  
17 September 4, 2007, which I understand is in the Court record at Docket # 255  
18 ("Emerson Decl."), and have considered the works identified in Exhibit B to the  
19 Emerson Declaration (hereinafter, the "Studio Works").

20 3. Based on the analysis and calculations described below, my conclusion  
21 is that the probability that the Studio Works were *not* downloaded by defendants'  
22 United States users is for all practical purposes zero. To put the statistics described  
23 below into context, for many of the Studio Works the probability that the works  
24 were *not* downloaded by defendants' United States users is *less than* the probability  
25 of winning multiple consecutive Powerball jackpots. In other words, the chances are  
26 infinitesimally small.

**Analysis**

4. Exhibit B to the Emerson Declaration lists the Studio Works, the name of the dot-torrent file on defendants' website that corresponded to each Studio Work, and the number of times defendants' users requested to download each file from defendants' website. For the convenience of the Court, I am attaching this Emerson Declaration exhibit as Exhibit A hereto. I accepted as accurate the download request information from the Emerson Declaration.

5. For my analysis, I used two principal assumptions: that U.S. users make up approximately 25% of defendants' total user population and that those U.S. users are likely to download plaintiffs' works (that is, popular U.S. movies and television shows) at least in proportion to their numbers. I believe both of these assumptions are not only reasonable, but conservative.

6. Both assumptions are also supported by data. I reviewed certain documents produced by defendants in discovery in this case, and reliable public source information, regarding the percentage of defendants' total user population that is located in the United States. Both defendants' documents and the public source data were consistent: [REDACTED]

[REDACTED]. Certain of the documents I relied upon for this proposition are compiled in Exhibit B hereto.

7. An analysis of limited data produced by defendants [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED] Exhibit 1 to the Supplemental Declaration of Professor Ellis Horowitz, being submitted contemporaneously with this declaration, reflects this analysis. It shows that defendants' participating U.S. registered users

1 [REDACTED]  
2 [REDACTED]  
3 [REDACTED] This of course is consistent with the fact that the works at  
4 issue are popular U.S. works, in English, that played in U.S. theatres and aired on  
5 U.S. television. It is also consistent with the fact that the United States generally  
6 enjoys widespread and relatively low cost access to the sort of high-speed Internet  
7 connections that make it easier to download plaintiffs' works, which tend to be very  
8 large files. Accordingly, I believe these assumptions are in fact reasonable and  
9 conservative.

10 8. Relying on the number of download requests indicated in the Emerson  
11 Declaration is also what I believe to be a very conservative measure. First, I am  
12 advised that the server log data Mr. Emerson had for his analysis consisted of only a  
13 very short period of time (less than one month of data total), because that is the only  
14 data defendants produced. Undoubtedly, these same works were available and  
15 downloaded for far longer periods (almost certainly for many months at a time).  
16 Second, Mr. Emerson explains that his analysis looked only at a single dot-torrent  
17 file for each of the Studio Works and further that the same Studio Work was often  
18 available through multiple dot-torrent files. Thus, the actual download numbers for  
19 these Studios works would likely be a significant multiple of the numbers reported  
20 in the Emerson Declaration.

21 9. Using universally accepted statistical principles, for each Studio Work,  
22 I calculated the probability that the work was *not* downloaded by at least one of  
23 defendants' users within the United States. The formula I used to conduct these  
24 calculations is as follows:  $(1 - p)^n$  with "p" being the probability the work was  
25 downloaded by a U.S. user; "1 minus p" being the probability the work was  
26 downloaded by a non-US user; and "n" being the total number of download requests  
27 for the file. This calculation uses the binomial model which is a commonly used  
28

1 statistical model discussed in a leading treatise on statistics, William G. Cochran,  
2 Sampling Techniques, (3rd ed. 1977).

3 10. The results of my calculations are set forth in Exhibit C attached hereto.  
4 Column A identifies the Studio Work; Column B identifies the number of Isohunt  
5 downloads for that torrent file; Column C identifies the number of TorrentBox  
6 downloads for that torrent file; Column D represents the total downloads (the sum of  
7 Columns B and C); and Column E represents the expected number of downloads by  
8 U.S. users given assumption that 25% of defendants' users are from the U.S.;  
9 Column F represents the probability that none of the downloads were by defendants'  
10 U.S. users. The reference to "E - \_" at the end of these numbers is a scientific  
11 convention to convey the number of places that the decimal point should be moved  
12 to the left. For example, the probability that the file *Fifty First Dates* was not  
13 downloaded by one of defendants' U.S. users is presented as

14 2.5972567740277200E-81 which translates as follows:

15 0.00  
16 0000000000000000259725677402772. For the two entries for *28 Days* and *Scrubs*,

17 the probability that the file was not downloaded by a U.S. user was so low it could  
18 not be represented by anything other than a zero. Column G represents that

19 probability that the file was downloaded at least once by one of defendants' U.S.  
20 users and is calculated as follows: (1 minus the sum in column F) with "1"

21 signifying that the file was downloaded to a certainty. For many of these works, the  
22 probability that the files were downloaded by one of defendants' U.S. user was so

23 high, it could not be represented as anything other than a certainty or "1". Column

24 H compares the probability of there being no U.S. downloads for the file with the

25 probability of being dealt consecutive royal flushes in poker; Column I compares the

26 probability of there being no U.S. downloads for the file with the probability of

27 winning consecutive Powerball jackpots. Column J is a hypothetical calculation that

28

1 reports on the probability that none of defendants' U.S. users downloaded the file  
2 assuming that the download requests for that file were half of those observed by  
3 Emerson in his report.

4 11. By way of illustration, in the available data, the television show *Scrubs*  
5 (episode #509, *My Half-Acre*) had the highest number of total downloads at 3718.  
6 The probability that *Scrubs* episode torrent file was not downloaded by at least one  
7 of defendants' U.S. users is effectively zero. What that means is that the probability  
8 is so low that the computer is unable to represent the number as anything other than  
9 zero.

10 12. In the available data, the motion picture *Lady Killers* had the lowest  
11 reported number of total downloads at 34. The probability that the *Lady Killers*  
12 torrent file was not downloaded by at least one of defendants' U.S. users is  
13 0.000056504489467856200. There is a 99.9435 % chance that the work was  
14 downloaded by one of defendants' U.S. users.

15  
16 **Conclusion**

17 13. I do not believe any reasonable scientist would consider these  
18 probabilities as anything other than zero and that it would be accepted for all  
19 effective purposes as being certain that these files were downloaded by defendants'  
20 U.S. users.

21  
22 I declare under penalty of perjury that the foregoing is true  
23 and correct. Executed on September 15, 2009.

24 

25  
26 Richard Waterman, Ph.D.